

Xantholinini of the Australian region (Coleoptera: Staphylinidae), V. New species collected by Alexander Riedel in Arfak and Cyclops Mts., New Guinea

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Abstract: Seven new species of Xantholinini (*Eachamia sentanica* sp. nov., *E. cyclopica* sp. nov., *E. riedeli* sp. nov., *Mitomorphus arfakensis* sp. nov., *M. cyclopicus* sp. nov., *M. riedelianus* sp. nov., *M. doyo* sp. nov.) are described from the Arfak and Cyclops mountains, Indonesian Papua (former Irian Jaya). To date, 147 species of Xantholinini have been recorded from the island of New Guinea, an indication of the high level of biodiversity in a region in which few collections of members of this tribe have as yet been made.

Key words: Coleoptera, Staphylinidae, Xantholinini, *Eachamia*, *Mitomorphus*, new species, Indonesian Papua.

Introduction

Contributions to the knowledge of Xantholinini of the Australian Region have been published in the past, including revisions of the species of the Australian subregion (Australia and neighbouring islands) (Bordoni 2005), the New Zealand subregion (New Zealand and neighbouring islands) (Bordoni 2005a), the Austro-Malayan subregion (New Guinea and neighbouring islands) (Bordoni 2010a), and a few subsequent papers with descriptions of new species (Bordoni 2010b; 2010c; 2010d).

Even before then the author (Bordoni 2002) had examined or described many species that inhabit the islands of the western portion of the area that are considered transitional between the Oriental and Australian regions. As a result of these studies, genera known from the Australian Region increased from 38 to 52, and the number of species increased from 102 to 229. Descriptions of some other genera and species are pending (Bordoni in print).

With regard to New Guinea in particular, 17 genera were known before publication of the abovementioned revisions; genera now number 20 including one new genus, and species, which numbered 54, currently number 147, including 85 new taxa.

The current publication deals with the species of Xantholinini collected by Alexander Riedel (Staatliches Museum für Naturkunde, Karlsruhe).

To date only three large sized species

(*Guineodinella gigantula* (Bernhauer, 1915), *Thyreocephalus taitiensis* (Boheman, 1858), *T. splendens* (Cameron, 1939) were known from this area in the North of the island (Bordoni 2010a). Another 7 new species are described in the current paper.

This demonstrates the special biodiversity of this large island, the need for more thorough entomological research in various areas of the region, and also shows that large parts of the island are still virtually unexplored and can be expected to produce many new taxa in future.

Cyclops Mountains are located in the north-east of Indonesian Papua, South from Jayapura, on the border of Papua New Guinea. This almost inaccessible, isolated mountain range of northern montane rain forests surrounded by tropical lowland forest is an ecoregion of particular importance; part of it has been designated a natural reserve.

The area is composed of isolated montane forests covering many mountains (Cyclops is the highest peak at 2158 m). These isolated mountains all lay North of the central range of the island.

The climate of the ecoregion is tropical and wet, which is characteristic of this part of Melanesia located in the western Pacific Ocean north of Australia. The vegetation of the ecoregion is generally tropical montane rain forest. Predominant canopy trees include *Nothofagus*, Lauraceae, *Lithocarpus*, *Castanopsis*.

The open forests of the Cyclops Mountains are dominated by *Kania* and *Xanthmyrtus*, with



Lithocarpus and *Notophagus* at higher altitudes. Above 1400 m coniferous trees dominate, with *Podocarpus* (WWF 2008).

Acronyms used in the text:

CAB – coll. Arnaldo Bordini, Firenze, Italy;
MZB – Zoological Museum, Bogor, Cibinong, Indonesia;
SMNK – Staatliches Museum für Naturkunde, Karlsruhe, Germany.

Descriptions of new taxa

Eachamia sentanica sp. nov.

Holotype ♂ MZB, Irian Jaya, Jayapura, Sentani, Gn. Cyclops, 710 m, S02°32.031', E140°30.412', A. Riedel leg. 2.XII.2007.

Derivatio nominis: The specific epithet refers to the type locality, Sentani area.

Description: Length of body: 11.5 mm; from anterior margin of head to posterior margin of elytra: 6 mm. Body shiny. Head and pronotum black; elytra, abdomen, antennae and legs brown; elytra with bronze reflex. Head very large, wider than long, with large clypeus; mandibles very large and long, eyes as long as antennomeres 7-10 together, posterior angles broadly rounded. Surface with 1 puncture near the frontal grooves, 2 punctures in an oblique line near the anterior margin of eyes, 2 punctures near the posterior margin of eyes; eyes with a groove near the internal margin; numerous fine and deep punctures on the lateral portion of tempora. Labrum as in fig. 1. Pronotum broader and shorter than head, dilated anteriorly, with rounded anterior angles and sinuate sides. Surface with 1 fine puncture near the anterior angles. Elytra longer and broader than pronotum, sub-rectangular, with marked humeral angles. Surface with one series of fine and sparse punctures near the suture and one lateral series. Some punctures with very long pale setae. Abdomen with very fine and dense transverse micro-striation and fine and almost dense puncturation on the sides, the punctures bearing very long, pale, recumbent setae. Tergite and sternite of the male genital segment as in figs 2-3. Aedeagus (Fig. 4) 0.88 mm long, with large and short median lobe.

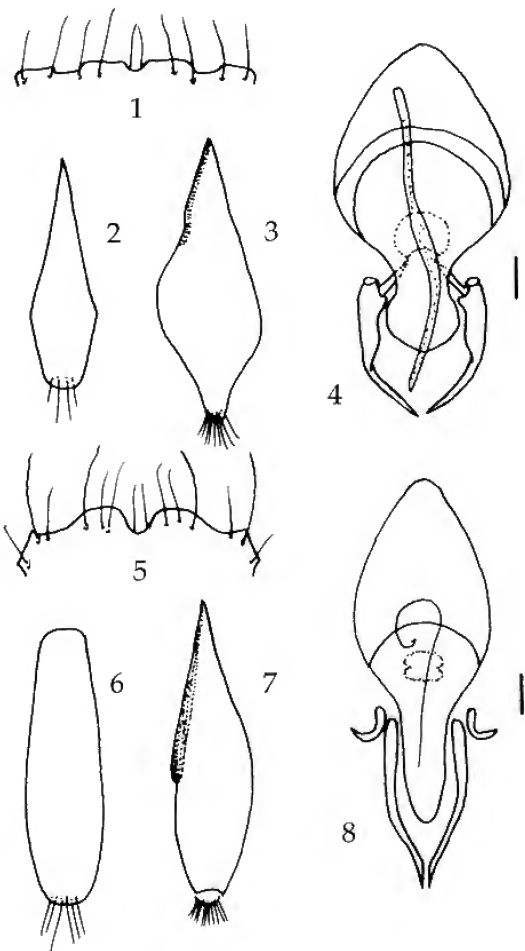
Distribution: Only known from the type locality, Cyclops mountains in central New Guinea.

Note: This species is closely related to *Eachamia waylebetica* Bordini, 2010a from Batanta (Raja Ampat Archipelago) and Vogelkop

Peninsula (West New Guinea) but differs in the dimensions, colour and especially in the size of the head and the shape of the aedeagus.

Eachamia cyclopica sp. nov.

Holotype ♂ MZB, Irian Jaya, Jayapura, Sentani, Gn. Cyclops, 960 m, S02°31.683', E140°30.281', A. Riedel leg. 21.XI.2007.



Figures 1-8. *Eachamia sentanica* sp. nov.: 1 – labrum, 2 – tergite and 3 – sternite of male genital segment; 4 – aedeagus; *Eachamia cyclopica* sp. nov.: 5 – labrum, 6 – tergite and 7 – sternite of male genital segment; 8 – aedeagus [bar scale: 0.1 mm].

Derivatio nominis: The specific epithet refers to the Cyclops Mountains.

Description: Length of body: 8.5 mm; from anterior margin of head to posterior margin of elytra: 5.3 mm. Body shiny, reddish brown; elytra with bronze reflex. Head quadrate, with broadly rounded posterior angles. Eyes protuberant, as long as antennomeres 3-5 together. Surface of head



with 1 puncture at the end of frontal grooves, 2 punctures in an oblique line between the eyes, near the internal margin, 2 punctures in an oblique line behind eyes; some punctures near the posterior margin of head. Mandibles very large. Labrum as in fig. 5. Pronotum narrower and longer than head, sub-rectangular, slightly dilated anteriorly, with rounded anterior angles. Surface with 2 punctures near the

Distribution: Known only from the type locality, Cyclops mountains in central New Guinea.

Note: This species is closely related to *Eachamia corusca* Bordoni, 2005 from Australia (North Queensland) but differs by the shorter body, not rounded head, robust mandibles, different shape of labrum, 3rd antennomere much longer than 2nd, pronotum with 2 punctures, abdomen without transverse microstriation, and the shape of the aedeagus.

***Eachamia riedeli* sp. nov.**

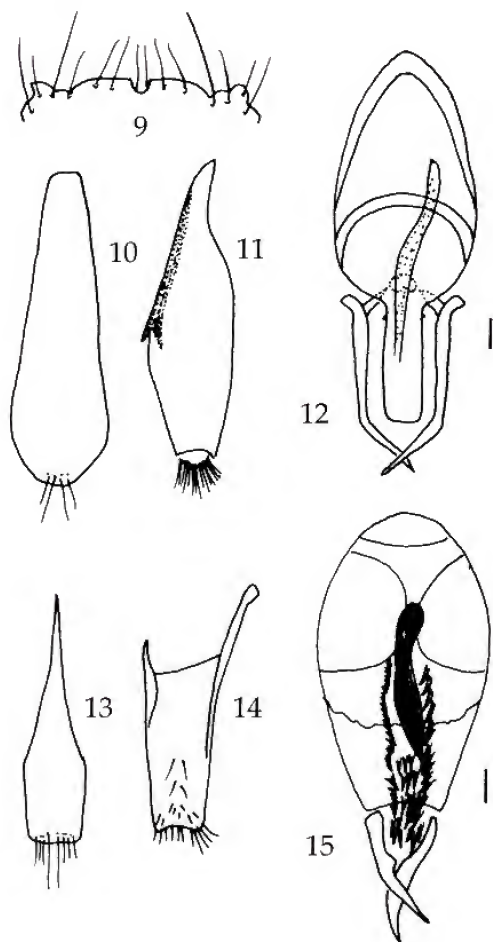
Holotype ♂ MZB, Irian Jaya, Jayapura, Sentani, Gn. Cyclops, 500-900 m, S02°32.2', E140°30.4', A. Riedel leg. 21.XI.2007.

Derivatio nominis: Patronymic. Dedicated to its first collector, Alexander Riedel.

Description: Length of body 12 mm; from anterior margin of head to posterior margin of elytra: 7 mm. Very large species, shiny; head and pronotum with greenish-bronze reflex; elytra with violet reflex; abdomen black with posterior half of 5th visible segment, 6th segment and genital segment reddish. Antennae reddish brown, with the last three antennomeres yellowish; legs reddish brown. Head large, quadrate, with broadly rounded posterior angles; eyes as long as the last three antennomeres. Surface of head with 1 puncture at the end of the frontal grooves, 2 punctures between the eyes, 2 punctures in an oblique line behind the eyes; some punctures near the posterior margin; fine and dense punctures on the deflexed portion of tempora, behind the eyes. Labrum as in fig. 9. Pronotum shorter and narrower than head, dilated anteriorly, with marked anterior angles. Surface with one puncture near the anterior angles. Elytra longer and wider than pronotum, with marked humeral angles. Surface with one series of punctures near the suture, one lateral series, and other scattered punctures. Abdomen with very fine, dense transverse microstriation and fine and sparse puncturation; all punctures with long erect setae. Tergite and sternite of male genital segment as in figs 10-11. Aedeagus (Fig. 12) 1.33 mm long, with long sub-rectangular median lobe, with very small lateral denticulation in the proximal part, with quadrate apex; scales of the inner sac very pale.

Distribution: Known only from the type locality, Cyclops mountains in central New Guinea.

Notes: This species is closely related to *Eachamia corusca* Bordoni, 2005 from Australia (North Queensland), but differs in the larger body, different coloration, elytra with only two series of



Figures 9-15. *Eachamia riedeli* sp. nov.: 9 – labrum, 10 – tergite and 11 – sternite of male genital segment; 12 – aedeagus; *Mitomorphus arfakensis* sp. nov.: 13 – tergite and 14 – sternite of male genital segment; 15 – aedeagus [bar scale: 0.1 mm].

anterior angles. Elytra sub-rectangular, much longer and wider than pronotum, with marked humeral angles. Surface with dense and deep puncturation, arranged in numerous series. Abdomen with very fine and dense polygonal microreticulation and fine and sparse puncturation. Tergite and sternite of the male genital segment as in figs 6-7. Aedeagus (Fig. 8) 1 mm long, with long and narrow median lobe, with rounded apex.



punctures, and the different shape of the aedeagus. A better understanding of the species of the genus *Eachamia* is provided by the dichotomous key given in the revision of the Xantholinini of New Guinea and the Austro-Malaysian islands (Bordoni 2010a).

***Mitomorphus arfakensis* sp. nov.**

Holotype ♂ MZB, Irian Jaya, Manokwari, Arfak Mts, Mokwam, Siyoubrig, 1870 m, S02°07.066', E133°54.710', A. Riedel leg. 11.XII.2007.

Derivatio nominis: The specific epithet refers to the type locality.

Description: Length of body 7 mm; from anterior margin of head to posterior margin of elytra: 4 mm. Body shiny, reddish brown. Head oblong, very long and narrow, the sides slightly rounded. Eyes very small. Surface of head with two parallel series of 2 punctures on the clypeus and with fine and sparse puncturation on the sides. Pronotum longer than head, of the same width, with oblique anterior margins, almost obsolete anterior angles and scarcely sinuate sides. Surface with dorsal series of 5-6 very fine and sparse punctures and a lateral series of 5 punctures. Elytra shorter and slightly wider than pronotum, with almost obsolete humeral angles and sub-parallel sides. Surface with 3 series of a few, fine and sparse punctures. Abdomen with fine transverse microstriation and fine and sparse puncturation. Tergite and sternite of male genital segment as in figs 13-14. Aedeagus (Fig. 15) 1.33 mm long, with characteristic structures of inner sac.

Distribution: Known only from the type locality, Arfak mountains on Vogelkop, West Papua.

Note: This species is closely related to *Mitomorphus abilalanus* Bordoni, 2010a from Papua New Guinea (Madang Province, Finisterre Mountains) but differs in the longer body, different puncturation on pronotum, narrower sternite of male genital segment and the inner structures of the aedeagus.

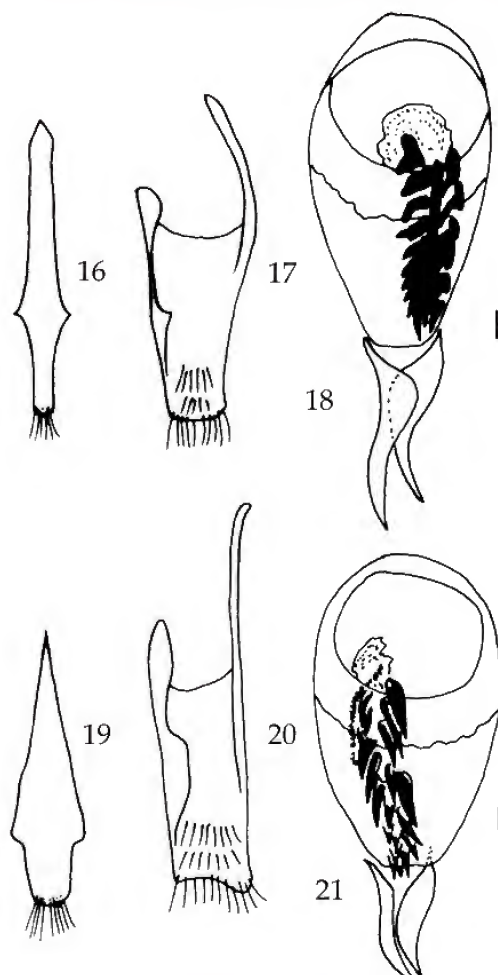
***Mitomorphus cyclopicus* sp. nov.**

Holotype ♂ MZB, Irian Jaya, Jayapura, Sentani, Gn. Cyclops, 620 m, S02°32.166', E140°30.512', A. Riedel leg. 19.XI.2007.

Paratypes 5 exx: 1♂ SMNK, same data as in holotype; 1♂, 1♀ CAB, 1♂ SMNK, same data, 960 m, S02°31.683', E140°30.281', A. Riedel leg. 21.XI.2007; 1♂ SMNK, same data, 515 m, S02°32.291', E140°30.505'; 1♂ CAB, same data, 365 m, A. Riedel leg. 27.XI.2007.

Derivatio nominis: The specific epithet refers to the type locality.

Description: Length of body 8.5 mm; from anterior margin of head to posterior margin of elytra: 4.5 mm. Body fuscous. Head and abdomen (partially) opaque owing to microsculpture; pronotum and elytra shiny; antennae brown with last antennomeres paler; legs pale brown with femora yellowish. Head and a small portion of clypeus totally covered by extremely fine and dense polygonal microreticulation, with sparse punctures. Pronotum longer and broader than head, with very oblique anterior margins and almost obsolete



Figures 16-21. *Mitomorphus cyclopicus* sp. nov.: 16 – tergite and 17 – sternite of male genital segment; 18 – aedeagus; *Mitomorphus riedelianus* sp. nov.: 19 – tergite and 20 – sternite of male genital segment; 21 – aedeagus [bar scale: 0.1 mm].

anterior angles. Surface covered by dense and deep puncturation apart from a narrow median strip. Elytra broader and shorter than pronotum, subrectangular, with marked humeral angles.

Surface covered by dense and deep puncturation arranged in numerous series. Abdominal segments with a depression at the base, with fine and dense polygonal microreticulation and fine and sparse puncturation. Tergite and sternite of the male genital segment as in figs 16-17. Aedeagus (Fig. 18) 1.85 mm long, with asymmetrical parameres and internal sac with 2 series of large spines.

Distribution: Known only from the type locality, Cyclops mountains in central New Guinea.

Note: This species is closely related to *Mitomorphus punctatissimus* Bordoni, 2010a from Papua New Guinea (Madang, Morobe and Rintobe District) but differs from all its congeners by the polygonal microreticulation on the head and the shape of the tergite and sternite of the male genital segment, as well as by the structure of the internal sac of the aedeagus.

***Mitomorphus riedelianus* sp. nov.**

Holotype ♂ MZB, Irian Jaya, Jayapura, Sentani, Gn. Cyclops, 945 m, S02°31.776', E140°30.215', A. Riedel leg. 21.XI.2007.

Paratypes 4 exx: 1♀ SMNK, same data, 365 m, S02°32.478', E140°28.835', A. Riedel leg.; 1♂ SMNK, same data, 620 m, S02°32.166', E140°30.512', A. Riedel leg. 19.XI.2007; 1♀ CAB, same data, 365 m, S02°32.478', E140°28.835', A. Riedel leg. 27.XI.2007; 1♂ SMNK, same data, Doyo, S02°32.478',

elytra: 4.5 mm. Body fuscous, shiny; humeral angles slightly reddish; antennae and legs brown, femora yellowish. Head ovoid, with slightly rounded sides. Eyes very small. Surface of head with polygonal microreticulation laterally and posteriad; two parallel median series of 3 punctures behind the clypeus; numerous punctures laterally and posteriad. Pronotum long and narrow, longer but not broader than head, with a dorsal series of 13-14 irregular punctures, a lateral series of 8-10 irregular punctures and some other scattered punctures. Elytra sub-rectangular, shorter and wider than pronotum, with well marked humeral angles; surface with very numerous punctures, arranged in numerous series. Abdominal segments with a depression at the base, with very fine and dense polygonal microreticulation and sparse puncturation. Tergite and sternite of male genital segment as in figs 19-20. The sternite very narrow and long. Aedeagus (Fig. 21) 1.92 mm long, with asymmetrical parameres and inner sac with 2 series of large spines.

Distribution: Known only from the named localities, Cyclops mountains in central New Guinea.

Note: This species is closely related to *Mitomorphus sublitoraneus* Bordoni, 2010a from Indonesian Papua (Wondiwoi Mts. and Testega) in its external characters but differs by the structures of the inner sac of the aedeagus.

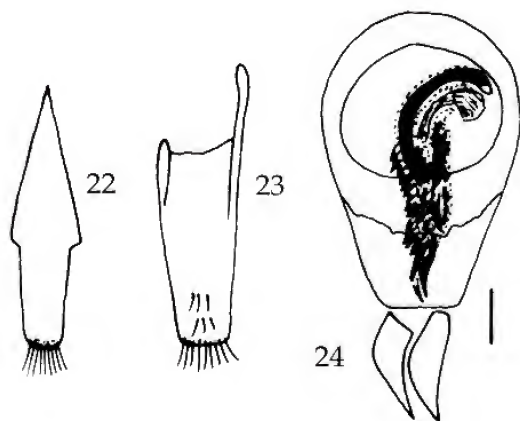
***Mitomorphus doyo* sp. nov.**

Holotype ♂ MZB, Irian Jaya, Jayapura, Sentani, Doyo, Gn. Cyclops, 365 m, S02°32.478', E140°28.835', A. Riedel leg. 27.XI.2007.

Paratypes 30 exx: 5 exx SMNK, same data, 365 m, S02°32.478', E140°28.835', A. Riedel leg. 27.XI.2007; 2 exx SMNK, Jayapura, Sentani, Gn. Cyclops, 575 m, S02°32.221', E140°30.526', A. Riedel leg. 19.XI.2007; 1 ex. SMNK, same data, 620 m, S02°32.166', E140°30.512'; 2 exx CAB, same data; 2 exx SMNK, same data, 515 m, S02°32.291', E140°30.505'; 5 exx SMNK, same data, 1065 m, S02°31.594', E140°30.407', A. Riedel leg. 21.XI.200; 4 exx CAB, same data; 2 exx SMNK, same data, 1150 m, S02°31.516', E140°30.436'; 1 ex. CAB, same data; 4 exx SMNK, 785 m, S02°31.912', E140°30.416', A. Riedel leg. 2.XII.2007; 4 exx CAB, same data.

Derivatio nominis: The specific epithet refers to the type locality, Doyo, as a noun in opposition.

Description: Length of body 5 mm; from anterior margin of head to posterior margin of elytra: 2.8 mm. Body reddish brown, shiny;



Figures 22-24. *Mitomorphus doyo* sp. nov.: 22 – tergite and 23 – sternite of male genital segment; 24 – aedeagus [bar scale: 0.1 mm].

E140°28.835', A. Riedel leg. 27.XI.2007.

Derivatio nominis: Patronymic. Dedicated to its first collector, Alexander Riedel.

Description: Length of body 8.5 mm; from anterior margin of head to posterior margin of



antennae reddish brown with the last segment yellow; legs pale brown with yellowish femora. Head anteriorly not narrow, with sub-parallel sides and largely rounded anterior angles. Eyes small and salient. Surface of head with two parallel series of 2 punctures on the clypeus and some sparse and very fine punctures, especially on the sides. Pronotum slightly longer and narrower than head, dilated anteriorly, narrow posteriad, with very oblique anterior margins, obsolete anterior angles and very sinuate sides. Surface with a dorsal series of 5-6 punctures and lateral series of 4 spaced punctures. Elytra little longer and much broader than pronotum, sub-rectangular, large, with marked humeral angles. Surface with 3 series of fine and sparse punctures. Abdomen with superficial and sparse transverse microstriation and fine and sparse puncturation. Tergite and sternite of the male genital segment as in figs 22-23. Aedeagus (Fig. 24) 0.74 mm long, with large, asymmetrical parameres and characteristic inner sac.

Distribution: Known only from the named localities, Cyclops mountains in central New Guinea.

Notes: This species is closely related to *Mitomorphus budemuensis* Bordoni, 2010a from Papua New Guinea (Finisterre Mountains), but differs especially in the shape of the inner sac of the aedeagus. A better understanding of the species of the genus *Mitomorphus* is provided by the dichotomous key given in the revision of the Xantholinini of New Guinea and the Austro-Malaysian islands (Bordoni 2010a).

***Mitomorphus* sp.**

Material: 1♂, 1♀ SMNK, Manokwari, Arfak Mts, Mokwam, Siyoubrig, 1870 m, S01°07.066', E133°54.710', A. Riedel leg. 11.XII.2007.

A pair of specimens, dead in copula, from was violently separated during the preparation. The inner sac of the aedeagus, with everted internal structures composed of spines, was inserted in the vagina. The ♂ has an aedeagus without inner sac and parameres outside the abdomen. The basal bulb was in normal position in the abdomen, because it is never extruded from the abdomen during the copulation in the species belonging to the tribe Xantholinini, as it is much more massive than the genital opening. The everted inner sac, turned inside-out like a glove, has a completely different shape than it has when the aedeagus is at rest, so I am not able to identify this couple.

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